A BUSINESS-FOCUSED IT SERVICE MODEL FOR CLOUD

David Miller and Mark Woodman
School of Engineering and Information Sciences, Middlesex University, Hendon, London, NW4 4BT, U.K.
D.Miller@mdx.ac.uk, M.Woodman@mdx.ac.uk

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Abstract: The hitherto limited interpretation of service as deployed in IT value creation and solutions implementation is perhaps a reason why so few IT projects are seen to have successful business outcomes. There are strong indications that the commonly used measures of quality and performance have never been adequate for complex services such as IT. As cloud-based technology changes the business and IT landscape it is important to consider how IT services will evolve and can be managed to become more business-focused. A services-based model for IT is described which has been developed from evidence gathered from business and IT and ideas from other sectors. Validated in the field, it is designed around the high value touch-points between business and IT and uses needs-based and experience-based measures for business alignment and service excellence. It is the first time that services have been identified formally as being necessary for business and IT alignment. This is of critical importance to businesses using cloud-based solutions and consistent with the service science notion of the co-creation of value.

1 INTRODUCTION

Cloud computing ('cloud' for short) is a significant development in the delivery of IT services. Much of the cloud discussion is currently of a technical nature but the implications of cloud will be even more profound for those buying, using and managing IT services. The dominant worldview for IT service provision is moving from one in which IT resources are constrained by available capital, to a cloud-influenced one where apparent commoditisation means that resources are available as needed and paid for on a utility basis: in budgetary terms we are moving from capital expenditure for facilities ('cap-ex') to operational expenditure ('op-ex').

Cloud is bringing about changes to both the IT industry structure model and to business models. Enterprises may choose to maintain a 'cap-ex' approach by installing managing their own private cloud-based infrastructure to create internal services e.g. the UK Government "G-Cloud" project (HMG 2010). Alternatively externally managed, 'op-ex' services can be obtained such as Software as a Service, Platform as a Service, and Infrastructure as a Service. (Whether these are truly 'services' is discussed below.) The range of services is increasing, old competitive (vendor) advantages are being eroded, and new 'big brand' entrants are now evident, e.g. Google, Microsoft, Amazon, Salesforce.com, etc. The attendant new business models are typically concerned with flexibility to do with varying scale, dynamic facilities requirements and operational efficiency; new opportunities are emerging in terms of how business might interact with technology – i.e. by becoming both a consumer and a configurator (Sharif 2010).

Arguably the beneficiaries of the changes will be the consumers of what we might term commoditised IT services across all parts of the business ecosystem, from supplier to end user – hereafter collectively referred to as 'the business'. However, (as discussed further below) primary and secondary evidence shows that IT services are not delivering business value. Hence, for cloud services a resolute and diligent business focus is needed to be sure of realizing business value from these services. The challenge to the cloud-oriented IT services industry will be whether it can meet the many needs of the business, which is after all, the most important cloud entity and the principle quality driver (Vouk 2008).

Cloud technology is still maturing, so there is considerable uncertainty and much to be done to

create a true utility (Buyya et al. 2008), but some clear trends are emerging. Firstly there is heavy investment by the IT services industry in cloud technology which is attempting to commoditize IT through product homogenization e.g. platform virtualization, unit cost reduction, and ease of access. Secondly there is a gradual 'convergence' of business and IT:

- business people who are IT literate;
- businesses sometimes operate as the configurators when purchasing cloud services;
- businesses are behaving as process engineers using tools such as BPM;
- service concepts are transferring from the business world to the IT world.

As IT is becoming more business-focused, problematically, the established IT service management methods are grounded on the use of IT resources and production processes (OTGI&OGC 2008); in a cloud-based environment the business may have no knowledge of these. The emergence of cloud computing is an opportunity for businesses and IT service providers to not merely improve current standards of IT service delivery but to adapt to the changes now taking place within the industry so that this improvement can be maintained.

This paper discusses the changing relationship between business and IT. It considers new service models and measures of performance and quality that are more appropriate to a cloud environment and which will impact on the way cloud facilities are packaged, either as commoditised products or value-enhancing services.

The paper is structured as follows. Section 2 outlines the research programme and the data from which concepts used later have emerged. Section 3 discusses the nature of an IT service, how this can be made to be totally business-focused, and describes a service model and related concepts. Section 4 reviews developments over recent years for measuring services in IT and other sectors – going in some depth into ideas from other disciplines to make the point that metrics other than the traditionally technical need to be considered for cloud services. Section 5 defines an assessment framework that meets our definition of IT services and which is suitable for cloud. Section 6 is the summary.

2 BUSINESS PROBLEMS WITH IT/CLOUD SERVICES

The approach to cloud service provision is based on output from a research programme that is looking to maximize the business impact of IT.

The research approach is practice-based. It has two parallel aspects - empirical (Miller 2008) and grounded theory (Corbin and Strauss 2008). The data for the grounded theory consists of 100 interviews with different people in several large international enterprises from business (consumers of services) and IT (suppliers of services). Each conversation is focused upon IT service improvement. So far, 100 codes or concepts have been identified from almost 2000 coded segments of text. Five major themes (or categories) have emerged to define the complexity of the relationships between business and IT, which must be managed if the business impact is to be maximised. The central theme is the total business experience of the service and its potential as a measure for improvement; this will be discussed. Space does not permit a full exposition of the data and it's coding; instead, interview fragments from three of the companies, denoted ORG1, ORG2 and ORG3, will be quoted to provide a flavour of the evidence.

Among the research aims is a better understanding of the opportunities for value creation and the role and nature of the service relationship between the business and IT against the background of the changes taking place within the IT industry such as the emergence of cloud.

There are many facets to the problems if IT services that affect cloud. Since businesses are concerned with value, it is appropriate to start with that concept. For example, a senior IT operations manager from ORG1 said that "Customers are probably satisfied with the service from operations but would like systems to respond more quickly to providing new or additional capabilities... IT is now more willing to provide value-add services." Cloud makes this possible and introduces an agility for provisioning that was not available previously, although "combined with the other IT constraints of security, global standardization etc. can mean long delays and frustration for the user. Too much of a delay and there is a risk that they will stop asking for help, a risk that they may go elsewhere and source solutions outside of the IT domain."

Cloud makes the combination of facilities technically easier too. However, the technology was not the concern in either of the just quoted cases: there is a need to manage the business experience such that business value is added by IT services (of whatever kind) and corporate controls are maintained. What the IT manager of ORG1 has implicitly recognized is that regardless of any current measure of service quality, businesses operate on at least *perceptions* of utility and value. As a senior IT applications man-

ager from ORG1 put it: "[IT has] major concerns about managing expectation and delivering a service to meet the business needs." The same organization's quality manager put the dangers more bluntly: "End users consider themselves the best and expect the best. Don't know what they think of us but it may not be good."

That fear is well founded. A board member of ORG2 stated: "… IT investment priority must be given to initiatives which improve the design and delivery processes. In IT terms, [we] must continue to stop local initiatives. When making investment decisions we must be vigilant to ensure that there are benefits and that we are not just investing to make people happy."

A senior group manager in ORG3 said: "The whole business needs a better user experience. I expect this to be achieved technically using portal and small footprint devices to a private cloud." She also went on to say that the problem went beyond simply engineering the right technical solution. Because there may be no direct control IT will need to be managed differently; we have to think about what constitutes the business experience and how this matches the business need and the service specification. These considerations are at the heart of the research reported here: establishing the principles for services in general so as to maximize the value returned by utilizing cloud services

3 MAKING IT SERVICES BUSINESS-FOCUSED

A significant confusion in practice is concerned with the notions of service and product – not necessarily about their definitions but about their role. For example, the senior IT operations manager for ORG1 opined that IT "could be offering a greater product/service range". Hence to start to address the business challenges with the provision of cloud facilities, a.k.a. services, a brief discussion of terminology is useful.

Traditionally products and services have been contrasted by describing 'products' as capable of being manufactured and held in stock prior to purchase (transfer of ownership). By contrast, the key characteristics of 'services' are frequently referred to as being their intangibility (e.g. consultancy), inseparability (i.e. delivery and consumption happen simultaneously), variability (i.e. each instance of the delivery will vary depending on the subject business) and perishability (i.e. service capacity not consumed is lost forever).

IT has adapted, extended and even distorted these ideas through firstly the standardization of process and then the introduction of automation – making them essentially products. Thus a business service becomes an information service orchestrated by a software product – e.g. using a web 'service' or service oriented architecture. The existence of a product in the delivery of a service also changes the nature of the service required to support it; thus though management has tended to focus on the product element the product/service mix is what has to be managed. By invoking measures of product performance to assess the whole the critical act of the co-creation of value becomes neglected. If the same mistake is made with cloud-based services major business opportunities may be missed.

A distinguishing attribute is the potential for ownership: the consumer of a *product* can acquire ownership, whereas the consumer of a *service* cannot. This also has a significant effect on how a business perceives the value and utility it might need from a product or service such as cloud.

Ultimately, a full debate on the appropriate terminology is probably needed. For brevity in this paper we will generally assume a consensus on their meanings. In the context of cloud-based IT our position is that if the value is inherent in a product and is realized by its consumption then we have a product-orientated supply chain. If the value is co-created by the supplier of the service and its customer – who implicitly enter a mutually dependent relationship – then we have a service-orientated supply chain. Accordingly, we see services as people-dependant activities, which may be exploiting product within the mix.

By definition hardware and software product and information services such as web based applications or requests for shared resources (e.g. from a cloud) are perhaps firstly an output from a value creation service and secondly potential inputs to other people services where it has been recognised that there is value in their consumption. The business, however, may see both the people-related services and the information-based services as integral and will judge the IT services provider accordingly. For instance, a director of ORG2 stated: "IT must adequately equip Company 2 to work with customers, partners, and suppliers as a virtual team." This is a crucially important point when designing cloud-based services: business assumes that people are part of a service (in which value is co-created) and judge the service according to how well it meets their needs. Technology may enable a service to be provided in the first place, and automated to minimize people dependency, but the technology options, the service specification, the delivery, the discussions about service improvement

opportunities, etc. come from people. Thus the business will look to IT to not just deliver good product but also to contribute to value creation – achieved by matching the service to the business need.

If an enterprise is to maximise its opportunities to gain business value from cloud, it must reflect these principles in the technical and management models it adopts. In other words, while the technical developments of cloud computing progress (and are sometimes packaged as 'services'), deep service ideas that connect to business needs and the realisation of value must also be progressed. Our experience shows that there are significant beneficial consequences associated with maintaining a business focus. As an engineer in ORG2 said, "Improvements will probably come through a more integrated effort and a more integrated team, i.e. business and IT people working together.", and "ORG2 must have a more homogenous technical environment that improves the connectivity between ORG2, Corporate , rest of the group, partner and client organisations."

Figure 1 shows the layers of a particular tried-and-tested IT service model (Miller 2009) and identifies the related concepts that have had to be redefined not just for a business-focused service model but also in a cloud context:

- The expression of service quality
- Business–IT alignment
- Governance
- Maturity
- Transformational change.

Miller's IT service model shows that business needs, the total business experience and a service specification are interrelated through a five-layer 'service stack': (1) service management, (2) business engineering, (3) service/process engineering, (4) service execution and (5) Core services and Operational IT service management.

This is an important shift from the past focus on the IT requirements specification which embodies only the bottom layer of the five service categories described by the service stack. We argue that this has contributed to the persistently low success rates in terms of the business outcomes of IT projects over the last forty years, e.g. (Standish 2009) and others; see (Miller and Woodman 2010) for that discussion. The consequences for maximizing business value from cloud services are that mere IT requirements specifications are not enough.

Our evidence shows a 'perception gap' between business and IT. This perception gap arises not just because of the poor success rates just mentioned but also because IT typically uses a product orientation to measure IT service performance, according to the IT requirements specification and the service specification or service level agreement, whilst the business is asking itself whether the total business experience of using the service meets their needs – an assessment of satisfaction with a broad range of services, not products. Hence the business

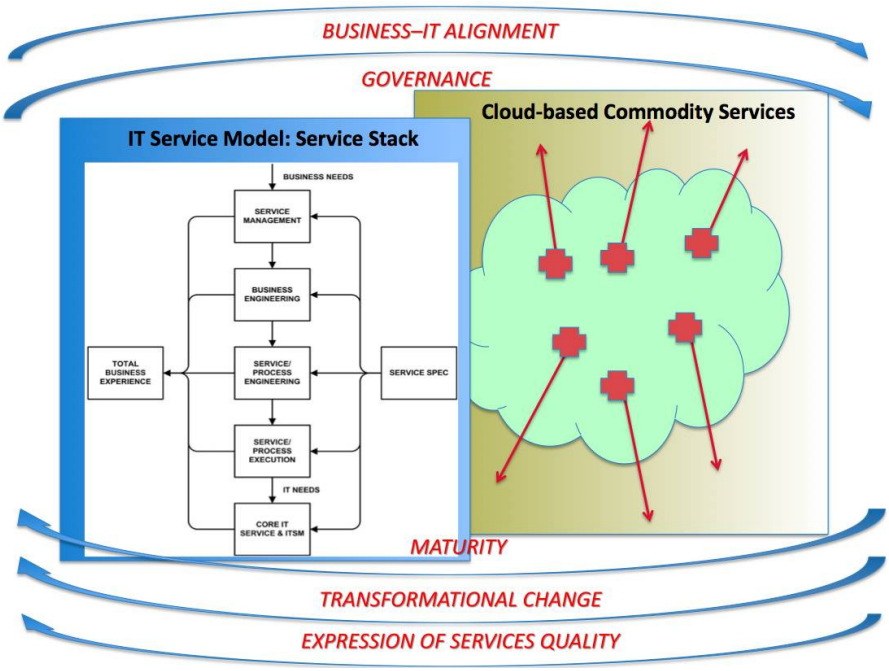

Figure 1: Expanding the management model.

inclination is to measure and assess services, while the IT inclination is to measure a assess product. This product orientation by IT has limited the nature of discussions with the business, limited business expectations of IT and limited IT's ability to add value. There is a question as to whether the manner in which IT services are currently measured has ever been adequate for something as complex as IT, never mind cloud. Add to this the necessity to deal with the complexities of modern businesses: the business ecosystems and service supplier and solution relationships make the co-creation of value a more significant opportunity.

Arguably the existing IT management methods are even less helpful in the context of cloud if they rely on controlling the IT resources and processes. Those management methods are of diminishing value in an environment in which cloud has an increasing influence, except perhaps where it is possible for an informed cloud user to have total visibility of, if not control over, the IT resources and processes used by the cloud service provider. For these reasons the way all IT services, including cloud services, are managed must now include a measure of which reflect the business experience of the service. ORG2's director reflected a common business stance on the consequences of ignoring this: "The culture of the group is such that if IT does not listen or fails to respond to demand, then others will do their own thing."

An IT service model suitable for cloud such as that described provides the means of bringing about this change. It tells us which activities need to be embraced and we now have to ask if current metrics and expressions of business value are all that is needed for service management and service improvement purposes.

4 RELATED WORK

This section reviews work related to the points raised. It considers developments pertaining to the measurement of service performance and service quality not just in IT but in other sectors and other management disciplines. Due to space limitations and to highlight how a non-IT view of service quality can be relevant, this brief review somewhat overemphasises the concepts from other disciplines.

As business has moved from the industrial era to the services era (Grant 2000) performance management systems have had to adapt. Quantitative service performance measurement has been the main means of monitoring and improving performance in delivering services. IT too has adopted this approach by managing the production processes that have been developed to automate the information services. The receiver of cloud services does not control the production process and so to improve services to business involving cloud a greater emphasis must be placed on analysing and measuring the experience received. The business experience of general service consumption can be always assessed regardless of who delivers it and how it is delivered – provided we can agree on the measurement method. Business-focused measurement of IT services (i.e. of the kind relevant to business people) is not yet widely used but we can expect it to include service performance, service quality and other measures that are ultimately connected to cloud computing including what is already available to us.

Service quality measurement has been under development by marketing professionals for the business-to-consumer sector since the 1980s as a means of understanding customer expectation and satisfaction. This has given rise to the concept of 'disconfirmation' (Zeithaml et al. 1988) as described within a service quality model. Disconfirmation uses the pre-consumption expectation as a reference point for a comparative judgment that is made following the actual delivery of a service. Service quality is assessed using what is referred to as the attitudinal headings of: tangibles, reliability, responsiveness, assurance, knowing the customer, and access. Service quality has been controversial not least because of its relative subjectivity. Some would argue that measures of service performance are all that is needed (Cronin. and Taylor 1992). However, because much of this debate was in a business-to-consumer context there was little concern for the co-creation of value.

Customers generally expect more than they get; so there is a risk associated with trying to improve customer perceptions if the assessment is made from a single viewpoint (Rosen et al. 2003). Be that as it may, when businesses (as the consumers of cloud services) perceive the cause of service failure to be within the control of the service provider, and so likely to occur again, they will be more dissatisfied than when the opposite conditions hold (Bitner 1990). We conclude that to eliminate the most likely causes of failure we must understand them, especially those that may occur again.

Methods of assessing IT solutions focus on measuring value, which is also close to the service performance viewpoint. Where possible, and more precisely, these assessment methods measure the price-value comparison of systems from the perspec-

tive of value for money. Value-based software engineering (Boehm 2003) introduces seven key elements that provide the foundations: benefits realisation analysis, stakeholder value proposition elicitation and reconciliation, business case analysis, continuous risk and opportunity management, concurrent system and software engineering, value based monitoring and control, and change as opportunity. A value perspective also implicitly requires a focus on outcomes.

By contrast, COBIT (ISACA) and ITIL (OGC 2010) are IT-focused methods for auditing the deployment of IT resources and the production processes that are constantly being updated to keep pace with changes in technology. Their focus is operational systems.

These and as many as twenty other frameworks, methods and standards (each typically with their own operational focus) are used in combination by many but have they been criticised because there has been little attempt at internal standardisation or process definition (Galup et al. 2007).

Another problem relevant to cloud services is the confusion between notions such as IT service management (ITSM), business services management (BSM), and IT governance (Winniford et al. 2009). Some suggest a closer alignment with business. (Velitchkov 2008) points to the vast array of development/management methods and the generally accepted view that IT is failing to meet business expectations. He suggests that the fault lies in the lack of business and IT alignment, problems with IT strategy and inadequate control mechanisms. As a solution he advocates extending the architectural approach (Zachman 1987; Zachman 1978) by combining the objects within the domains of enterprise architecture and IT strategy. Others also focus on enterprise architecture and advocate its use as a corporate planning tool by the inclusion of business model components like goals, products, markets, or competitors (Winter and Schelp 2008). Such architectural developments have been the basis of many automated tools and they will become more important but there is a risk that reliance on approaches such as this underestimate the dynamics between the IT service provider and the business required for the co-creation of value.

If we are to rise to the challenge of maximising the value business experiences with cloud computing, we must progress the theory of service value creation, or co-creation, (Chesborough and Spohrer 2006). To achieve that we must look beyond the traditional IT boundaries and recognise that the service science is becoming multi-disciplinary (Glushko 2008). As an example, (Pinhanez 2008) describes the benefits of applying services science principles to the design of on-line service applications. Worldwide there is an interest in innovation in the services industry and (Feldman et al. 2006) describe the importance they attach to business design and implementation, business optimisation and management, and service delivery. Two key themes here are the component business model and virtualisation, combining different disciplines in creative ways to make this successful. Many of us are locked into a manufacturing/production paradigm" (Spohrer and Maglio 2008) and as the nature of the relationship between the business and the IT service provider changes, driven in some part by cloud-based technologies, we must consider how that relationship needs to be managed in the future.

In a converged world where a business is able to utilize commoditised IT services from cloud, we should model and assess those services using a wide range of management skills (including IT). Recognising the importance of the more intangible properties of service in the context of marketing professional services, (Kotler et al. 2002) developed the concept of brand equity. Here it is used to describe a brand's overall strength as a function of its image, the price-value relationship it offers, and customer loyalty. They explain that all three factors influence each other though in the case of IT services the duration of a business-supplier relationship can often be the result of product inertia or lock-in rather than service loyalty. Lock-in will arise in cloud as a consequence of a lack of standardisation (Buyya et al. 2008). When applied to something as complex as IT services the work suggests that a wide range of quality and performance measure are appropriate..

A number of strategic frameworks for managing organisational performance were developed in the 1980s and 1990s to overcome the obvious dangers of simply relying on financial information. These are the Malcolm Baldridge National Quality Award (MBNQA), European Foundation for Quality Management (EFQM) and the Balanced Scorecard. The limitations of each have been identified (Dror 2008). These models were not designed for anything as complex as today's businesses in which a dependency on complex IT is embedded and it can be safely assumed that they are not contenders for measuring IT services in any context including cloud.

The added complexities of outsourced services cannot be omitted from this discussion as it is another area where the IT resources and IT processes may be obscured from the business. The work of

(Vandaele et al. 2007) describes the management relationships between consuming organizations and service suppliers and usefully separates the concepts of contractual governance and relationship governance. Both are treated equally but the relationship between them is not further defined. Contractual governance in the context of cloud is important and may break new ground where it is necessary to seek guarantees, e.g. that data storage or processing must only be undertaken within countries with adequate data protection legislation.

In some parts of the services sector organizations seek to manage customer experiences and to use this to design service delivery systems (Zomerdijk and Voss 2009). Although their work was limited in scope and complexity they advocated designing services around the key touch-points. This applies to IT and cloud services in particular and the service stack is such a service model.

IT must embrace a wider range of measures that more reasonably reflect the complexities of the relationship between the business customer and IT and that this is likely to lead to a heightened awareness of the opportunities to add value.

5 DETERMINING THE TOTAL BUSINESS EXPERIENCE

As services become dominant in many economies, and as cloud is adopted for IT service provision, there need to be consequential changes to business models and to the IT industry, especially in the way service quality is expressed. Some way of measuring performance is needed which enables us to improve the quality of those services to the business customer, including value creation, success rates, and hastening the onset of maturity, in a way that hasn't been achieved before.

The proposed method has been used during successful consultancy assignments for improving IT services and should be seen in the context of a Service Excellence Model (SEM) (Miller 2008, Fig. 2.2 p28). The model is a business-to-business extension of the business-to-consumer service quality model (Parasuraman et al. 1985). The SEM as depicted in Figure 2 is used for establishing service excellence by checking for the existence and nature of any service gaps. These can either be gaps in service planning or service delivery. Cloud should have beneficial implications for many aspects of service planning, e.g. Funding Gap and Resource Gap, and so improve expectation. Whereas the consumer model used in marketing is based on the perception of service and the buy/no buy decision, the SEM is based on the total business experience for the purpose of service improvement. For cloud computing the focal point of the SEM is the service *engine* at the heart of the model, which is circled in Figure 2, and its output, the Total Business Experience (TBE). The service engine encompasses the functions provided by the core service(s) actually supplied and service management. (These are explained later.) By being able to comprehensively assess the TBE against the

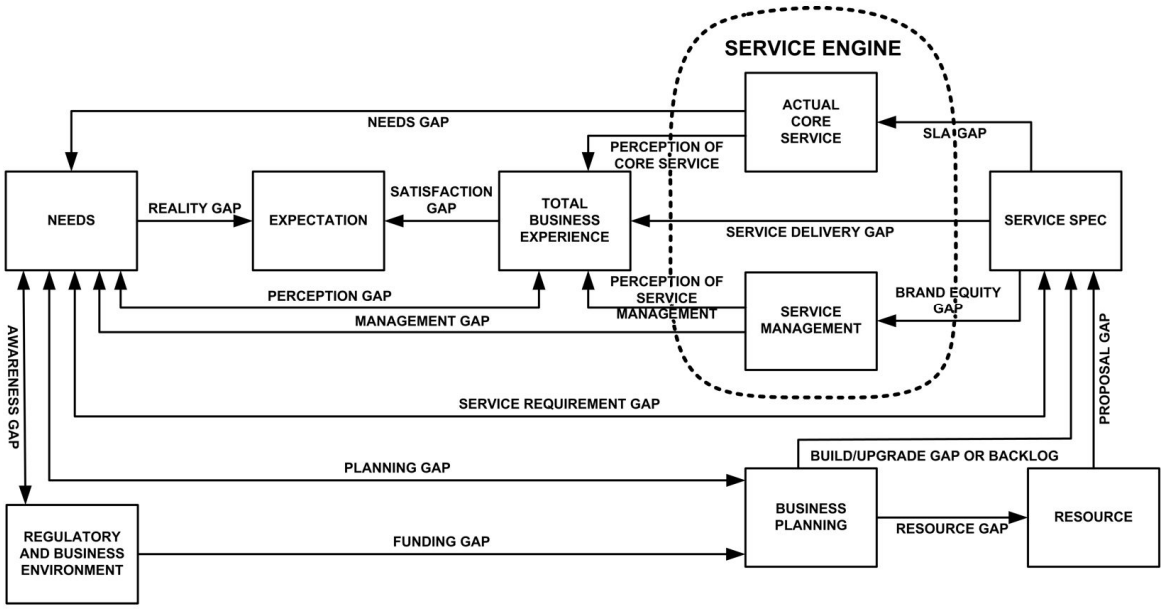

Figure 2. Service Excellence Model, adapted from (Miller, 2008).

business need the service engine can be improved and thus the TBE provides a measure of alignment Consider for example the different cloud experiences from software as a service, platform as a service, and infrastructure as a service in the supply mix of the service engine. Will the business express its preferences for cloud facilities as 'true' services rather than as rented products?

By applying the work of Kotler *et al.* to IT services we could argue that the TBE is a function of the price-value relationship of the core service and the brand value created by its externally facing activities. In order to make this useable in an IT and cloud context we have substituted the term 'core services' (*C*) for 'price-value relationship' and 'service management' (*M*) for the 'brand value' of the externally facing activities. This can be expressed as follows:

Total Business Experience (TBE) = $f(C, M)$

Picking up on the multi-disciplinary nature of value creation in the preceding section, this relationship has been developed further by considering the properties of the business experience that contribute to delivering core services and service management respectively in the context of IT and how a value for the TBE can be derived from these properties; this is covered in more detail in the next section.

Miller (2008) has devised a framework for understanding TBE. Table 1 illustrates the approach for profiling the properties that the business experiences when consuming a service. It is based upon elements from the review in Section 4 used in combination with the SEM. Together they identify and address issues of:

- Commonality (common causes of concern)
- Cause and effect
- Supply and demand.

The table represents a summary of an assessment of the properties of a given IT service. The resulting profile is typically based upon multiple perspectives and constitutes a consensus view or one held as true by the key stakeholders (Becker and Bjorn 2007). It expresses the extent to which these different properties of the service meet the ideal needs of the business. Comparisons with other suppliers or with conventional maturity models are not introduced into the assessment unless these are relevant to any of the stakeholders or the business case thus avoiding any risk of the over-engineering of the services.

The properties are generic to any service but here are modelled on IT service provision in a business-to-business context. Each property is broken down into some detailed dimensions and measured using appropriate criteria incorporating the standard quantitative and qualitative measures. If we compare the scope of this approach with existing practice in IT, the service performance metrics used with the many IT methods are principally confined to the properties concerning the definition and the delivery of the products and services of Table 1. This can be seen, for example, in the work of the SFIA Foundation (SFIA 2003). Thus existing investment in these methods is not wasted but that investment may be insufficient. Service quality data used in IT is similarly restricted to assessments of the people and the culture. Thus, current IT-related methods only partially address 3 of the 10 properties within the scope of this new framework.

Table 1: Assessing the service experience.

PROPERTY	*SCORE*	*PROPERTY*	*SCORE*
Definition of products and services	85	Business and sector awareness	65
Delivery of products and services	85	Marketing and communications	60
Bought-in products and services	75	Sales and value creation	50
Security	80	Commercial, financial, compliance, & admin	80
Technology	75	People, organisation and culture	65
Core services score (C)	80	Service Mgt score (M)	64
Total Business Experience (TBE)			**51**

The table identifies the key elements of the assessment arranged in two pairs of columns; the first pair contains the five properties representing the core service/product with a score (out of 100) for each, the second pair contains the five properties that influence service management and their scores. The whole constitutes what the business experiences as a result of receiving the service. Each score represents the extent to which those properties meet the ideals required by that business. The scores represent the consensus view resulting from a 360 degree assessment by business people, representatives from the IT service provider, and other key stakeholders across the ecosystem. The improvement and developmental ideas resulting from the gap analysis are subjected to

importance/performance assessments.

Overall, the core service activities have more quantitative performance measures than the service management activities where qualitative judgments are more prevalent.

The average score for the core services (*C*) and the service management (*M*) are the statistical mean of the properties of which they are comprised. The Total Business Experience (*TBE*) is calculated as the product of the score for the core service and the service management and expressed as a percentage of the ideal, i.e.

$C = (85 + 85 + 75 + 80 + 75) / 5 = 80\%$
$M = (65 + 60 + 50 + 80 + 65) / 5 = 64\%$
$TBE = (80 \times 64) / 100 = 51\%$

The empirical evidence from several commercial case studies suggests that poor service management reduces the impact of the core service and that this formula yields the closest expression of the functional relationship between the core services, service management, and the TBE. The scores for the TBE contrast markedly with those from typical customer satisfaction surveys which are often treated as public relations exercises and where much higher scores have come to be expected. From a business improvement perspective the output from an assessment and discussion of the TBE is likely to yield many more improvement opportunities for attaining service excellence.

Subjectivity is minimised but not eliminated by the detailed breakdown of the properties into their dimensions and by the assessment methods used such that there has never been any dispute about the results of the analysis amongst stakeholders. The model is also frequently used in workshop sessions following minimal explanation with good results.

6 CONCLUSIONS

Current IT-focused methods of managing IT services have not, on their own, been totally successful as far as business is concerned; arguably they will be less relevant where there is no knowledge of the resources or production processes used, e.g. cloud-based technologies.

The emergent service based method of assessment and alignment with business builds on a key concept of service science, that of the co-creation of value. This is believed to be the first time that services have been identified as formally being necessary for business and IT alignment.

The hitherto limited interpretation of services deployed in IT value creation and solutions implementation is perhaps another reason why so few IT projects are seen to have successful business outcomes. By contrast a study based on these ideas for a global financial services organisation generated around a hundred service improvement initiatives across ten work streams.

By taking ideas from sectors where the concepts of product and service are easier to comprehend, we have shown that IT management, including where services are in the cloud, can be redefined to become more business-focused using new service models:

- The Service Stack: designed around the high value touch-points between business and IT
- The Service Excellence Model using gap analysis as an indicator of service quality
- Total Business Experience: framework for assessing and aligning service needs.

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